U.S. Geological Survey Review of Water Resources in Iowa

March 2001

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NOTE: The data contained in this newsletter are provisional and subject to revision.

home page: http://www-iowa.usgs.gov
For previous editions of this report click on Historical Hydrologic Conditions.

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PRECIPITATION

Preliminary data reported to the U.S. Geological Survey by the Iowa Climatology Office indicates that state-wide average precipitation for March was 1.34 inches or 61 percent of the normal state-wide (1961-90) average precipitation of 2.19 inches for the month. It was rated as the 37th driest March in 129 years of record. The precipitation ranged from 31.7 percent of normal in the Northwest District to 95 percent of normal in the Southeast District.

State-wide temperatures averaged 30.2 degrees, which is 5.5 degrees below the average temperature for March. It was the 23nd coldest March in 129 years of record. (Harry Hillaker, State Climatologist, Iowa Department of Agriculture and Land Stewardship, facsimile communication). Monthly average total precipitation and the average temperature is shown in figure 1. The state-wide average precipitation for the preceding 11 months and for the state-wide normal period (1961-90) are shown in figure 2.

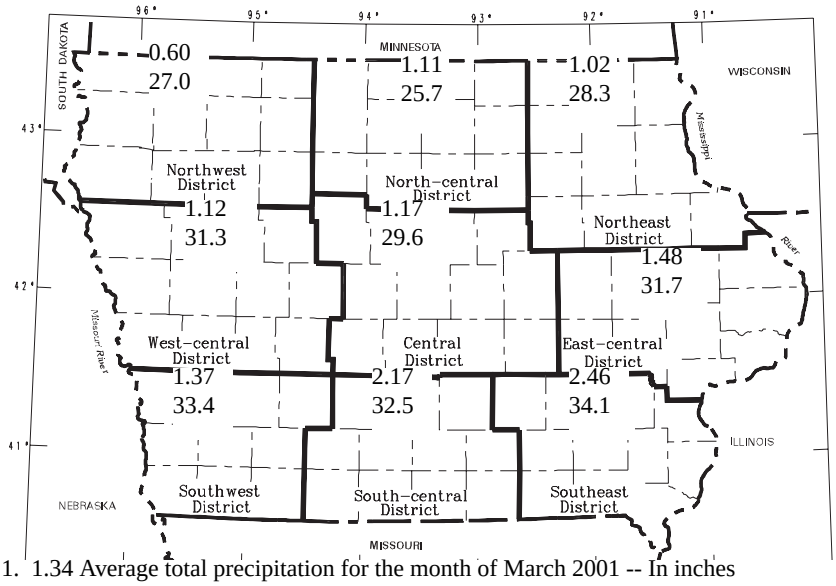

Figure 1. 1.34 Average total precipitation for the month of March 2001 -- In inches
30.2 Average temperature for the month of March 2001 -- In degrees Fahrenheit

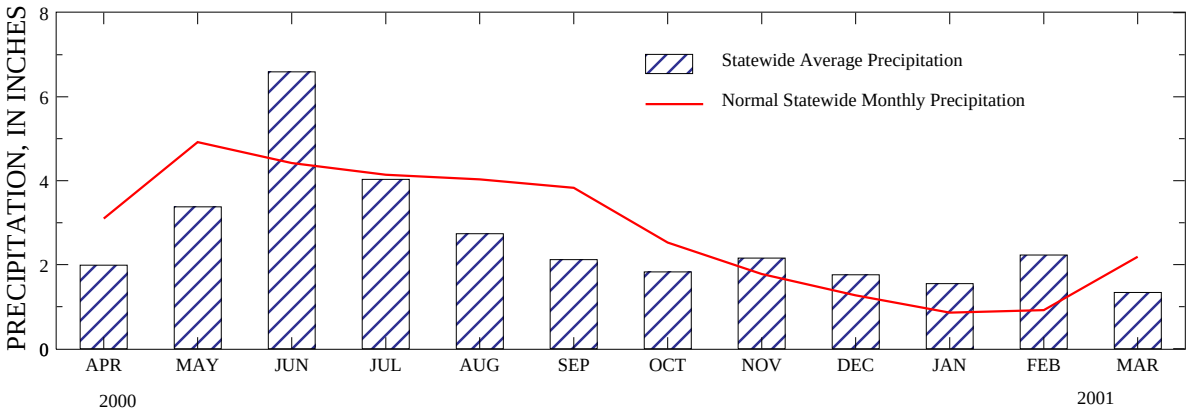

Figure 2. - Statewide average precipitation compared to normal statewide monthly precipitation, 1961-90.

SURFACE-WATER CONDITIONS

Measurements made by U.S. Geological Survey personnel indicate that discharge in most Iowa rivers and streams reached monthly high discharges late in the month with minimums early in the month.

The monthly average discharge at the index station on the Cedar River at Cedar Rapids was 121 percent of the median monthly average discharge for March (water years 1961-90). Discharge was in the normal range for the eighth consecutive month.

At the index station on the Des Moines River at Fort Dodge, the monthly mean flow was 256 percent of the median monthly average discharge for March (water years 1961-90). Discharge was in the above normal range for the month.

The monthly average discharge at the index station on the Nishnabotna River above Hamburg was 232 percent of the median monthly average discharge for March (water years 1961-90). Discharge was in the above normal range for the month.

Hydrographs from April 2000 to March 2001 for these stations are shown in figure 3.

The monthly average discharge for the Mississippi River at Keokuk was 110 percent of the median monthly average discharge for March (water years 1961-90), and in the above normal range for the month (Union Electric Company, written communication.)

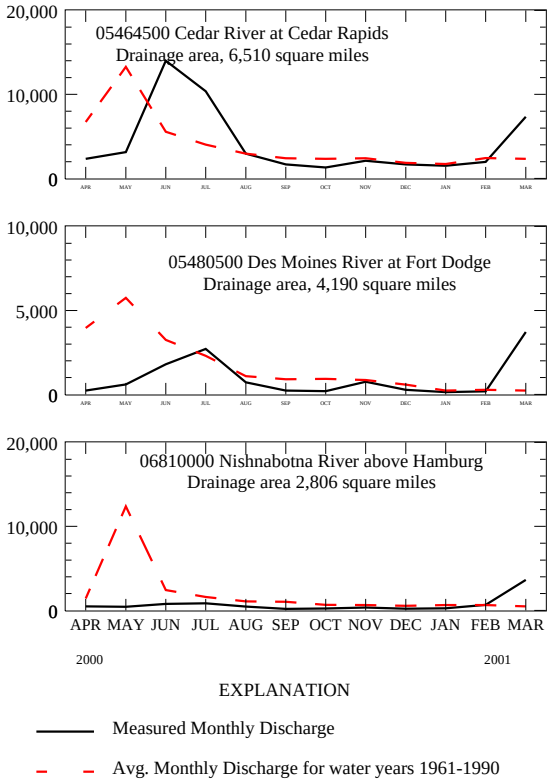

Figure 3.- Measured monthly discharge (April 2000 through March 2001) at index stations compared to the ave. monthly discharge for period of record.

Preliminary data from the U.S. Army Corps of Engineers indicate that runoff during March from the Missouri River and its tributaries upstream from Sioux City was 3,873,000 acre-feet, which is 132 percent of the normal (Larry Murphy, Reservoir Control Center, U.S. Army Corps of Engineers, Missouri Division, oral communication)

This-N-That

Techniques for Estimating Flood-Frequency Discharges for Streams in Iowa WRIR-00-4233

Floods of July 19-25, 1999 in the Wapsipinicon and Cedar River Basins, Northeast Iowa OFR-01-13

Copies available in the District Office, on Request.

GROUND-WATER CONDITIONS

Water level measurements were made during March by U.S. Geological Survey personnel in nine of ten water-table monitoring wells completed in glacial drift, alluvial, or bedrock aquifers. Eight of the nine wells measured had levels above average, Humboldt County was below average. All of the nine wells measured had levels above last month's levels. A summary of current and historical water-level data for these wells is presented in table 1. Hydrographs for April 2000 through March 2001 for three selected wells are shown in figure 4.

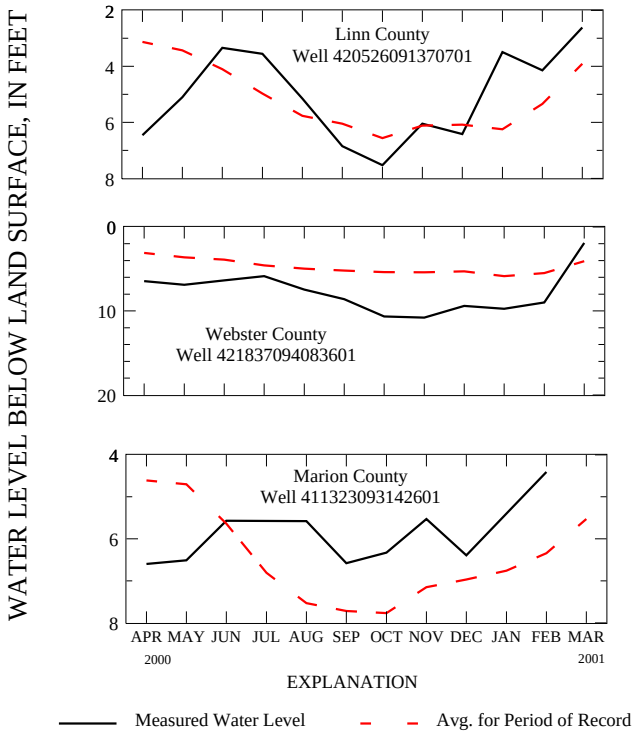

Figure 4.- Monthly measured water levels (April 2000 through March 2001) in selected wells compared to average monthly water levels for the period of record.

Table 1—Water-level data for selected wells completed in glacial drift, alluvial or bedrock aquifers
[Measurements in feet above (+) or below land surface]

County (Aquifer)	Monthly Water Levels			Extremes for period of record		Statistics of historical water levels for March		
	March 2001	February 2001	March 2000	Maximum	Minimum	Average	Maximum (Year)	Minimum (Year)
Clayton (Glacial Drift)	19.58	21.55	21.64	11.68 (8/91)	30.68 (12/59)	22.18	14.06 (1986)	30.19 (1958)
Harrison (Alluvial)	3.60	4.68	4.10	1.68 (7/98)	7.00 (9/88)	4.09	2.57 (1993)	4.77 (1987)
Humboldt (Glacial Drift)	12.88	14.02	12.60	4.40 (4/91)	19.29 (3/90)	12.16	6.14 (1992)	19.29 (1990)
Johnson (Bedrock)	14.25	16.26	18.14	5.58 (11/92)	21.65 (8/89)	15.74	13.63 (1960)	19.82 (1989)
Linn (Glacial Drift)	2.61	4.14	4.74	0.93 (5/82)	15.19 (1/77)	3.91	1.11 (1960)	11.25 (1956)
Lyon (Glacial Drift)	0.21	N/A	4.96	+0.41 (5/79)	9.74 (10/40)	2.96	0.09 (1973)	8.86 (1941)
Marion (Glacial Drift)	N/A	4.41	N/A	0.20 (10/73)	15.27 (10/53)	5.53	0.33 (1961)	13.32 (1956)
Montgomery (Glacial Drift)	14.14	20.35	N/A	0.94 (7/93)	Dry (2/64)	17.06	5.04 (1973)	34.05 (1938)
Washington (Glacial Drift)	1.79	2.48	3.92	1.29 (4/99)	13.64 (8/96)	3.81	1.79 (2001)	11.66 (1989)
Webster (Glacial Drift)	1.90	9.00	6.12	0.94 (4/98)	13.41 (2/56)	4.07	1.07 (1962)	11.96 (1956)